



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,068	10/06/2003	Kwang-Deok Seo	P--0557	4081
34610 7590 11/12/2008 KED & ASSOCIATES, LLP P.O. Box 221200 Chantilly, VA 20153-1200				
EXAMINER				
SAWAGED, SARI S				
ART UNIT		PAPER NUMBER		
2423				
MAIL DATE		DELIVERY MODE		
11/12/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/678,068

Applicant(s)

SEO, KWANG-DEOK

Examiner

SARI SAWAGED

Art Unit

2423

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13-29, and 33-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-29, 33 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Arguments

1. Applicant's arguments with respect to claim 1-11, 13-29, and 33-34 have been considered but are moot in view of the new ground(s) of rejection.
2. In response to applicant's arguments, the recitation "An HTTP based video stream(ing)" (claims 1, 7, 22, and 33) and "mobile communication system" (claims 7 and 22) have not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal et al. (hereinafter referred to as Agarwal) (US Pat 6,314,466) (of record) in view of Hunt (US Pat. No. 6,192,398).**

Claim 1:

Agarwal discloses a video streaming apparatus comprising:

a memory configured to store content files received from a transmitting server (Col. 8 lines 28-40 and Col. 13 lines 40-48; Agarwal discloses a pre roll buffer that is configured to store content files received from a transmitting server. Agarwal discloses that a user can request a random access point in a video stream from a server, wherein the received random access point is stored in a pre-roll buffer (which reads on "random access memory"), See col. 8 ll. 41 – col. 9 ll. 13);

a random access search unit to transmit a content file request message to the transmitting server (state 604 in fig. 6 and discussed in col. 8 ll. 41-56)

Agarwal doesn't disclose that the random access search unit searches for a random access point in memory and transmits a content file request message to the transmitting server in response to the search in the memory determining that the random access point does not exist in memory.

Hunt, an inventor from the same or a similar field, discloses an apparatus that searches for requested content in memory (step 510 in fig. 5B) and transmits a content file request message to the transmitting server (set 514 in fig. 5B) in response to the search in the memory determining that the requested content does not exist in memory (no decision from step 510 in fig. 5B).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the video streaming apparatus comprising the memory and the random access search unit of Agarwal with the apparatus that searches for requested content in memory and transmits a content file request message to the transmitting server in response to the search in the memory determining that the requested content does not exist in memory of Hunt because it would save network bandwidth and allow a user to repeatedly view information within a short span of time without retrieving the requested content from a server each time (as disclosed by Hunt see col. 2 ll. 1-9).

Claim 2:

Agarwal discloses that the apparatus of claim 1 further comprising a display unit to display the files stored in the memory corresponding to the random access point (see Col. 2 lines 23-25).

Claim 3:

Agarwal discloses the memory (pre-roll buffer) as discussed in claim 1 but doesn't specifically state that the memory is a storage disk.

Hunt, discloses that the components of a client apparatus include a hard disk drive 224 (see col. 4 ll. 10-28 and Fig. 2 component 224 "Hard drive").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Agarwal to store streamed data onto a storage disk as disclosed by Hunt because it would have given the client more flexibility/choices in storing streamed data. Storage disks can also be erased and rewritten to, therefore, would have been a cost efficient memory to use as opposed to write once type media.

Claim 6:

Agarwal discloses that his invention doesn't need to store an entire streamable data object before starting a presentation (see col. 3 ll. 49-52) and that a user can seek or jump to any portion of a presentation represented by the multimedia data object (col. 14 ll. 61-64). Agarwal further discloses that when the transmitting server receives a request from the client computer 112 at a user selected segment (random access point), the transmitting server "begins transmitting data corresponding to the specified segment (random access point) of the multimedia object 504 (Fig. 5) to the client computer 112 (Fig. 1) (see col. 8 ll. 41-56, col. 14 ll. 61-64, and the "random access" in the Title). The

examiner understands this to mean that if the multimedia data object begins playing from the beginning and the user decides to select a specific segment, that the server begins transmitting data corresponding to that user specified segment and doesn't wait until all the data from the beginning of the multimedia data object to the user specified segment has been transmitted to the user, which reads on wherein the transmitting server configures a new data stream based on the random access point requested by the random access searching unit.

Claim 7:

Agarwal discloses a method of providing a video stream apparatus comprising:

requesting a random access point for a prescribed content by a user (see col. 8 ll. 41-43, "multimedia object 500 starting at a user-selected segment");

receiving a data stream from the transmitting server beginning from the random access point (see col. 8 ll. 52-56, the streaming media server "begins transmitting data corresponding to the specified segment of the multimedia data object 504 (Fig. 5) to the client computer 112 (Fig. 1)).

Agarwal doesn't disclose determining whether the requested random access point is stored in a local memory or transmitting a content file request message to a transmitting

server when the random access point is determined to not be stored in the local memory.

Hunt, an inventor from the same or a similar field, discloses an apparatus that searches for requested content in memory (step 510 in fig. 5B) and transmits a content file request message to the transmitting server (set 514 in fig. 5B) in response to the search in the memory determining that the requested content does not exist in memory (see "no" decision from step 510 in fig. 5B).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the video streaming method of requesting a random access point for a prescribed content by a user and receiving a data stream from the transmitting server beginning from the random access point of Agarwal with the method that searches for requested content in memory and transmits a content file request message to the transmitting server in response to the search in the memory determining that the requested content does not exist in memory of Hunt because it would save network bandwidth and allow a user to repeatedly view information within a short span of time without retrieving the requested content from a server each time (as disclosed by Hunt see col. 2 ll. 1-9).

Claim 8:

Agarwal discloses further comprising displaying the received content files on a display device (see Col. 2 lines 23-25).

Claim 9:

Agarwal discloses wherein displaying the content files includes playing the files after storing the files received from the transmitting server for a prescribed period of time (see Col. 4 lines 1-9; Agarwal discloses a pre-roll buffer for storing files received from the transmitting server for a prescribed period of time before displaying the content files).

Claim 10:

Agarwal discloses that his invention doesn't need to store an entire streamable data object before starting a presentation (see col. 3 ll. 49-52) and that a user can seek or jump to any portion of a presentation represented by the multimedia data object (col. 14 ll. 61-64). Agarwal further discloses that when the transmitting server receives a request from the client computer 112 at a user selected segment (random access point), the transmitting server "begins transmitting data corresponding to the specified segment (random access point) of the multimedia object 504 (Fig. 5) to the client computer 112 (Fig. 1) (see col. 8 ll. 41-56, col. 14 ll. 61-64, and the "random access" in the Title). The examiner understands this to mean that if the multimedia data object begins playing from the beginning and the user decides to select a specific segment, that the server begins transmitting data corresponding to that user specified segment and doesn't wait

until all the data from the beginning of the multimedia data object to the user specified segment has been transmitted to the user, which reads on wherein the transmitting server configures a new data stream based on the random access point requested by the random access searching unit.

3. Claims 4, 5, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal in view of Hunt in further view of Aksu et al. (hereinafter referred to as Aksu) (WO 03/028293) (of record).

Claim 4:

Agarwal and Hunt disclose the apparatus of claim 1 (as discussed previously). Agarwal discloses that media (audio, video, and other multimedia data) can be streamed over a network (see col. 1 ll. 12-15 and col. 7 ll. 15-19) but doesn't specifically disclose storing/streaming fragmented mp4 files.

Aksu, an inventor from the same or a similar field, discloses that mp4 files can be stored/streamed and that the MPEG Group developed fragmented movie files (mp4 files) because the fragmentation of a movie file shortens the length of time that a user has to wait before starting to view the streamed media as opposed to a non fragmented MP4 file (see page 3 lines 11 -22 and Page 4 lines 18-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Agarwal to include the mp4 file streaming and fragmentation of Aksu

because it would have given the client the flexibility of being able to download a stream of media (movie, advertisement, etc..) that may have been only available in MP4 format while improving the wait time before viewing because of the advantages of MP4 file fragmentation.

Claim 5:

Aksu discloses wherein the mp4 file form comprises:

a plurality of data segments; a representative header associated with a first of the plurality of data segments; and a plurality of segment headers, each associated with remaining ones of the plurality of data segments (see Fig. 5a and page 8 lines 28-29; Aksu discloses that meta-data (moov in a non fragmented file or moov and moof in a fragmented mp4 file) typically appears at the beginning of streaming files as a file header section. Figure 5a shows a representative header labeled "File-level meta-data description part" which is only associated with the first of a plurality of data segments as shown in the figure and a plurality of segment headers labeled "meta data x" where x is the segment number).

Claim 11:

Agarwal and Hunt disclose the apparatus of claim 1 (as discussed previously).

Agarwal discloses that media (audio, video, and other multimedia data) can be streamed over a network (see col. 1 ll. 12-15 and col. 7 ll. 15-19) but doesn't specifically disclose storing/streaming fragmented mp4 files.

Aksu, an inventor from the same or a similar field, discloses that mp4 files can be stored by a server in a disk (see p. 7 ll. 5-19) and streamed and that the MPEG Group developed fragmented movie files (mp4 files) because the fragmentation of a movie file shortens the length of time that a user has to wait before starting to view the streamed media as opposed to a non fragmented MP4 file (see p. 3 ll. 11 -22 and p.4 ll. 18-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Agarwal to include the mp4 file streaming and fragmentation of Aksu because it would have given the client the flexibility of being able to download a stream of media (movie, advertisement, etc..) that may have been only available in MP4 format while improving the wait time before viewing because of the advantages of MP4 file fragmentation.

4. Claims 13-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal in view of Hunt in further view of Lin et al. (hereinafter referred to as Lin) (US Pat 6,738,980) (of record) in even further view of Aksu (of record).

Claim 13:

Agarwal and Hunt disclose the method of claim 7 as discussed previously.

Agarwal discloses searching the random access point by the transmitting server upon the transmitting server receiving the content file request message (see col. 8 ll. 52-56); Neither Agarwal nor Hunt disclose reconfiguring the data stream by setting a new data transmission starting point according to the screen type of the random access point and wherein receiving the data stream includes receiving the reconfigured data stream as at least one TCP packet.

Lin, an inventor from the same or a similar field, discloses setting a new data transmission starting point according to a screen type of the random access point (see col. 4 ll. 19-27; Lin discloses that if the random access point chosen is an I frame, then the server can configure the starting point to be that I frame, however if the random access point chosen is a P frame, then the server needs to adjust the starting point of the stream so that the client receives viewable media). Lin's disclosure is used to merely convey the methods that were used at the time the invention was made in a streaming media server/client network). It would have been obvious to one of ordinary skill at the time the invention was made to modify the method of "requesting a random access point for a prescribed content by a user; determining whether the requested random access point is stored in a local memory; transmitting a content file request message to a transmitting server when the random access point is determined to not be stored in the local memory; and receiving a data stream from the transmitting server

beginning from the random access point” of Agarwal and Hunt with the method of “setting a new data transmission starting point according to a screen type of the random access point” of Lin because it would have enabled the user to receive viewable data, as disclosed by Lin).

Neither Agarwal nor Hunt nor Lin disclose wherein receiving the data stream includes receiving the reconfigured data stream as at least one TCP packet.

Aksu, an inventor from the same or a similar field, discloses receiving a data stream as at least one TCP packet (see p. 1 ll. 30-36) for the benefit of servers being able to rely on the control mechanisms provided by the underlying transport protocol as opposed to employing application level means to control the bit-rate of the transmitted stream.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Agarwal, Hunt, and Lin disclosed above with the method of “receiving the data stream includes receiving the reconfigured data stream as at least one TCP packet” for the benefit of the server relying on the control mechanisms of the TCP protocol as opposed to application level means to control the bit-rate of the transmitted stream

Claim 14:

Lin discloses that if the random access point chosen is an I frame, then the server can configure the starting point to be that I frame, however if the random access point chosen is a P frame, then the server needs to adjust the starting point of the stream so that the user receives viewable media) (see Col. 4 ll. 19-27)

Claim 15:

Agarwal, Hunt, Lin, and Aksu disclose the method of claim 13 (as discussed previously).

Agarwal, Hunt, Lin, and Aksu disclose wherein reconfiguring the data stream comprises:

determining whether the random access point is an I-frame or a P-frame; configuring a data transmission starting point and a new media data sample based on the random access point so that the user receives viewable data (as disclosed by Lin, see rejection of claim 14); and

changing header information of the media data sample including the data transmission starting point (see Aksu p. 10 ll. 9-14; Aksu discloses that the file-level meta-data (moov) file can be repeated within mp4 file to support live streaming, fast forward or backward operations, random access, and other purposes. If a client requests a file that starts streaming and then the client decides to request a random access point that hasn't been downloaded/buffered, the server can search the random access point and reconfigure the data stream (and first header) with the file-level meta

data inserted at the random access point so that the user doesn't have to wait for the client computer to download all the data from the original request to the random access point that was chosen to begin viewing from the desired random access point).

Claim 16:

Aksu discloses wherein the header information comprises:
time information of the media data sample; and meta information corresponding commonly to the respective media data samples of the data stream (see Annex 1 - Sample Table Atom ('stbl') and Movie Atom ('moov')).

Claim 17:

Aksu discloses wherein changing the header information comprises transmitting the header information included in a header of an original media data sample to a header of the new media data sample, including the data transmission starting point (see page 10 lines 9-14; Aksu discloses that the file-level meta-data (moov) file can be repeated within mp4 file to support live streaming, fast forward or backward operations, random access, and other purposes. If a client requests a file that starts streaming and then the client decides to request a random access point that hasn't been downloaded/buffered, the server can search the random access point and reconfigure the data stream (including the header) with the file level meta data inserted at the random access point so that the user doesn't have to wait for the client computer to download all the data from the original request to the random access point that was chosen to begin viewing

from the desired random access point. The file-level meta data is the information included in a header of an original media data sample).

Claim 18:

Lin discloses that if the random access point chosen is an I frame, then the server can configure the starting point to be that I frame, however if the random access point chosen is a P frame, then the server needs to adjust the starting point of the stream so that the user receives viewable media) (see Col. 4 ll. 19-27)

Claim 19:

Lin discloses determining whether or not the random access point that is set as the data transmission starting point is the P-frame; searching an I frame closest to the random access point when the random access point is determined to be the P frame and the random access point is not set as the data transmission starting point; and configuring the media data sample by taking the closest I-frame as the data transmission starting point (see Lin Col. 2 lines 15-21 and Col. 6 lines 4-51; Lin discloses sending the closest I frame if the random access point is determined to be a p-frame and is not set as the data transmission starting point because the P frame could not be decoded properly without the previous frames in the GOP).

Claim 21:

Lin discloses sending the closest I frame if the random access point is determined to be a p-frame and is not set as the data transmission starting point because the P frame could not be decoded properly without the previous frames in the GOP (see Lin Col. 2 lines 15-21 and Col. 6 lines 4-51).

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal in view of Hunt in further view of Lin in even further view of Aksu in even further view of Wee et al. (hereinafter referred to as Wee) (US Pat No. 6,104,441).

Claim 20:

Agarwal, Hunt, Lin, and Aksu disclose the method of claim 19 as discussed previously.

Lin discloses that if the random access point chosen is an I frame, then the server can configure the starting point to be that I frame, however if the random access point chosen is a P frame, then the server needs to adjust the starting point of the stream to an I frame with the least cost (closest I frame) (the act of finding the closes I frame inherently means that a search was performed) (see col. 6 ll.4-51), which reads on "searching the I-frame closest to the P-frame random access point"

However, neither Agarwal nor Hunt nor Lin nor Aksu disclose "converting the P-frame into a new I-frame by calculating a value of the I-frame closest to the P-frame random access point and a next P-frame; and repeatedly converting next P-frames into new I-

frames until the P-frame random access point, when the P-frame is set as the data transmission starting point".

Wee, an inventor from the same or a similar field, discloses a method of converting the P-frame (P-frame 241) into a new I-frame by calculating a value of the I-frame closest to the P-frame random access point (the I frame that the random access point depends on) and a next P-frame (a P-frame that the random access point depends on); and repeatedly converting next P-frames (other P frames that the random access point depends on) into new I-frames until the P-frame random access point (P frame 241) (see Wee col. 11 ll. 35-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Agarwal, Hunt, and Aksu with the method of converting the P-frame into a new I-frame by calculating a value of the I-frame closest to the P-frame random access point and a next P-frame; and repeatedly converting next P-frames into new I-frames until the P-frame random access point, when the P-frame is set as the data transmission starting point for the benefit of being able to splice or reorder desired image frames without decoding entire GOPs as disclosed by Wee (see col. 3 ll. 19-32).

8. Claims 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal in view of Lin in further view of Wee in even further view of Aksu.

Claim 22:

Agarwal discloses a video streaming method comprising:

receiving a random access request (request for transmission of a multimedia object at a user selected segment, also see "random access" in the title)) from a remote unit (client computer 112) by a transmitting server (streaming media server 110) (see col. 8 ll.41-56) ;

searching a random access point in a content file stored in the transmitting server (the streaming media server accesses the multimedia data object at the user specified segment, the act of accessing the multimedia data object at the user specified segment inherently implies that the multimedia data object was searched) in response to the transmitting server receiving the random access request (in response to the request by the client computer 112) (see col. 8 ll.41-56);

Agarwal doesn't disclose "reconfiguring a data stream according to a screen type of the random access point and a coincidence between the random access point and a data transmission starting point, wherein reconfiguring the data stream comprises:

searching an existing I-frame closest to the random access point when the

random access point is determined to be a P-frame and is the data transmission starting point,

converting the P-frame into a new I-frame by calculating values of the existing I-frame and a next P-frame, repeatedly performing the converting until the next P-frame is the random access point to convert the P-frame random access point into a final new I-frame, configuring the media data sample having the final new I-frame as the data transmission starting point,

configuring the new data stream using the media data sample and the continuous media data samples, and

changing a first header information of the new data stream; and transmitting the new data stream to the remote unit"

Lin, an inventor from the same or a similar field, discloses that if a random access point selected by the user is an I frame, the starting point of the stream is that I frame (see col. 2 ll. 19-22), however, if the random access point selected is a P-frame, the system must adjust the starting point of the stream to the most recent I frame and transmit the most recent I frame with all the p frames leading to the requested random access p frame (see col. 4 ll. 24-32) (the act of finding the most recent I frame inherently means that a search was performed). The coincidence between the random access point and a

data transmission starting point is that if the requested random access point is an I frame, the data transmission starting point is that I frame, however if the random access point is a p frame, then the data transmission starting point will be the most recent I frame (closest I frame), the disclosure by Lin reads on "reconfiguring a data stream according to a screen type (frame type) of the random access point and a coincidence between the random access point and a data transmission starting point", "searching an existing I-frame closest to the random access point when the random access point is determined to be a P-frame and is the data transmission starting point", and "configuring the media data sample having an I-frame as the data transmission starting point".

Lin also discloses that when either the random access I frame or the closest I frame is sent (depending on the screen type of the random access point chosen by the user), the rest of the frames in the stream are sent as well (see Fig. 6B, where a random access point 22 in the forward stream was chosen. Frame 22 in the forward stream is a p-frame. The closest I frame was searched and found to be I frame 21 in the reverse stream. I frame 21 and the rest of the following frames (frames 22, 23, 24, etc...) in the forward stream were sent to the user), this disclosure by Lin reads on "configuring the new data stream using the media data sample and the continuous data samples", where the media data sample is the closest I frame, I frame 21 in the reverse stream, and the continuous data samples are the rest of the frames in the forward stream. Had only the forward stream been available at the server, the closest I frame, I frame 14 in the forward stream and the rest of the frames leading to frame 22 would have been sent

along with the rest of the frames following random access frame 22 in the content file.

This new stream is transmitted to the user (see supporting text col. 8 ll. 59- col. 9 ll. 15).

It would have been obvious to one of ordinary skill at the time the invention was made to modify the method of "receiving a random access request from a remote unit by a transmitting server; searching a random access point in a content file stored in the transmitting server in response to the transmitting server receiving the random access request" of Agarwal with the method of "reconfiguring a data stream according to a screen type (frame type) of the random access point and a coincidence between the random access point and a data transmission starting point", "searching an existing I-frame closest to the random access point when the random access point is determined to be a P-frame and is the data transmission starting point", "configuring the media data sample having an I-frame as the data transmission starting point", and "configuring the new data stream using the media data sample and the continuous data samples" of Lin because it would have enabled the user to implement VCR functionality of compressed video streams while minimizing extra network traffic and video decoder complexity, as disclosed by Lin (see col. 2 ll. 32-37).

Neither Agarwal nor Lin disclose

"converting the P-frame into a new I-frame by calculating values of the existing I-frame and a next P-frame, repeatedly performing the converting until the next P-frame is the

random access point to convert the P-frame random access point into a final new I-frame" or "changing a first header information of the new data stream".

Wee, an inventor from the same or a similar field, discloses converting a P-frame (P-frame P7, see col. 11 ll. 43-54) into a new I-frame (I-frame "I7") by calculating (transcoding) values of the existing I-frame (I-frame "I1") and a next P-frame (P-frame "P4"), repeatedly performing the converting ("is performed in as many nested loops as necessary") until the next P-frame (P-frame "P7") is the random access point to convert the P-frame random access point into a final new I-frame (I-frame "I7") (see Wee col. 11 ll. 35-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of "receiving a random access request from a remote unit by a transmitting server; searching a random access point in a content file stored in the transmitting server in response to the transmitting server receiving the random access request; reconfiguring a data stream according to a screen type (frame type) of the random access point and a coincidence between the random access point and a data transmission starting point", "searching an existing I-frame closest to the random access point when the random access point is determined to be a P-frame and is the data transmission starting point", and "configuring the media data sample having an I-frame as the data transmission starting point" of Agarwal and Lin with the method of "converting the P-frame into a new I-frame by calculating values of the existing I-frame

and a next P-frame, repeatedly performing the converting until the next P-frame is the random access point to convert the P-frame random access point into a final new I-frame” of Wee for the benefit of gaining access to individual frames in fast-forward, rewind, editing, or splicing operations, thereby enhancing the viewers experience.

Neither Agarwal nor Lin nor Wee disclose “changing a first header information of the new data stream”

Aksu, an inventor from the same or a similar field discloses MP4 file fragmentation in Fig. 5a where a File-level meta-data description part which appears at the beginning of streaming files as a header section must be received before any video is played back (see p. 5 ll. 8-11 and p 5 ll. 36-p. 6 ll.1). This file-level meta-data contains information that is common for the media data samples (see p. 5 ll. 8-11). In random access play this file must be received in the header of the new data stream before any playback can begin. Therefore, a first header information of a new data stream must be changed for proper playback.

It would have been obvious to one of ordinary skill in the at the time the invention was made to modify the method of “receiving a random access request from a remote unit by a transmitting server; searching a random access point in a content file stored in the transmitting server in response to the transmitting server receiving the random access request”, “reconfiguring a data stream according to a screen type (frame type) of the

random access point and a coincidence between the random access point and a data transmission starting point”, “searching an existing I-frame closest to the random access point when the random access point is determined to be a P-frame and is the data transmission starting point”, “converting the P-frame into a new I-frame by calculating values of the existing I-frame and a next P-frame, repeatedly performing the converting until the next P-frame is the random access point to convert the P-frame random access point into a final new I-frame”, “configuring the media data sample having the final new I-frame as the data transmission starting point”, “configuring the new data stream using the media data sample and the continuous data samples”, and “transmitting the new data stream to the remote unit” of Agarwal, Lin, and Wee with the method of “changing a first header information of the new data stream” of Aksu because the fragmentation of a movie file shortens the length of time that a user has to wait before starting to view the streamed media as opposed to a non fragmented MP4 file (see Aksu p.3 ll.11-22 and p.4 ll.18-34).

Claim 23:

Agarwal, Lin, and Wee disclose the method of claim 22 as discussed previously.

Lin discloses that the streaming media file consists of an MPEG file.

However, neither Agarwal nor Lin nor Wee disclose “an MF4 file applied by a file fragmentation process, and the data stream includes a plurality of media data samples and a plurality of headers of the respective media data samples.”

Aksu, an inventor from the same or a similar field, discloses that the mp4 file form comprises a plurality of data segments, a representative header associated with a first of a plurality of data segments; and a plurality of segment headers, each associated with remaining ones of the plurality of data segments (see Fig. 5a and page 8 lines 28-29; Aksu discloses that meta-data (moov in a non fragmented file or moov and moof in a fragmented mp4 file) typically appears at the beginning of streaming files as a file header section. Figure 5a shows a representative header labeled "File-level meta-data description part" which is only associated with a first of a plurality of data segments as shown in the figure and a plurality of segment headers labeled "meta data x" where x is the segment number).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of streaming a content file of Agarwal, Lin, and Wee with the method "wherein the content file in the transmitting server is an MP4 file applied by a file fragmentation process, and the data stream includes a plurality of media data samples and a plurality of headers of the respective media data samples" of Aksu because the fragmentation of a movie file shortens the length of time that a user has to wait before starting to view the streamed media as opposed to a non fragmented MP4 file (see Aksu p.3 ll.11-22 and p.4 ll.18-34).

Claim 24:

Aksu discloses a representative header including common meta information of the respective media data samples and time information of a first media data sample; and at least one segment header including time information of the respective media data samples except the first media data sample (see Fig. 5a, Page 8 line 34-page 9 line 11 and Annex 1; Aksu discloses a representative header including common meta information of the respective media data samples ("file-level metadata description part") and at least one segment header including time information of the respective media data samples except the first media data sample (segment "Meta-data" x). Annex 1 provides a list of modified MP4 atoms (structured meta data). Time information is disclosed in Edit List Atom and Sample Table Atom).

Claim 25:

Please see the rejection of claim 22 where it is shown that Lin discloses that the screen type comprises one of an I frame and a P frame.

Claim 26:

Agarwal, Lin, and Wee disclose the method of claim 22 as discussed previously. Lin discloses "determining whether the random access point is an I-frame or a P-frame; configuring the media data sample having the random access point as the data transmission starting point when the random access point is determined to be the I-frame; configuring a new data stream using the media data sample and continuous media data samples" (please see the rejection of claim 22).

Neither Agarwal nor Lin nor Wee disclose changing header information of a first media data sample segment when the random access point is an I-frame.

Aksu, an inventor from the same or a similar field discloses MP4 file fragmentation in Fig. 5a where a File-level meta-data description part which appears at the beginning of streaming files as a header section must be received before any video is played back (see p. 5 ll. 8-11 and p 5 ll. 36-p. 6 ll.1). This file-level meta-data contains information that is common for the media data samples (see p. 5 ll. 8-11). In random access play this file must be received in the header of the new data stream before any playback can begin. Therefore, the header information of the media data sample must be changed for proper playback.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of "determining whether the random access point is an I-frame or a P-frame; configuring the media data sample having the random access point as the data transmission starting point when the random access point is determined to be the I-frame; configuring a new data stream using the media data sample and continuous media data samples" of Agarwal, Lin, and Wee with the method of "changing header information of a first media data sample segment" of Aksu because the fragmentation of a movie file shortens the length of time that a user has to wait before

starting to view the streamed media as opposed to a non fragmented MP4 file (see Aksu p.3 ll.11-22 and p.4 ll.18-34).

Claim 27:

Please see the rejection of claim 22. Lin discloses setting an I-frame closest to the P-frame as the data transmission starting point, when the random access point is determined to be a P-frame.

Claim 28:

Aksu discloses MP4 file fragmentation in Fig. 5a where a File-level meta-data description part which appears at the beginning of streaming files as a header section must be received before any video is played back (see p. 5 ll. 8-11 and p 5 ll. 36-p. 6 ll.1). This file-level meta-data contains information that is common for the media data samples (see p. 5 ll. 8-11). In random access play this file must be received in the header of the new data stream before any playback can begin. Therefore, the header information of the media data sample must be changed for proper playback.

Claim 29:

Agarwal, Lin, and Wee disclose the method of claim 22 as discussed previously. Lin discloses "searching an I-frame closest to the random access point when the random access point is determined to be a P-frame and the random access point is not set as the data transmission starting point (but the closest I frame is set as the data

transmission starting point; configuring the media data sample having the (closest) I frame as the data transmission starting point; configuring a new data stream using the media data sample and continuous media data samples" (please see the rejection of claim 22).

Neither Agarwal nor Lin nor Wee disclose "changing a first header information of the new data stream"

Aksu, an inventor from the same or a similar field discloses MP4 file fragmentation in Fig. 5a where a File-level meta-data description part which appears at the beginning of streaming files as a header section must be received before any video is played back (see p. 5 ll. 8-11 and p 5 ll. 36-p. 6 ll.1). This file-level meta-data contains information that is common for the media data samples (see p. 5 ll. 8-11). In random access play this file must be received in the header of the new data stream before any playback can begin. Therefore, the header information of the media data sample must be changed for proper playback.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of "searching an I-frame closest to the random access point when the random access point is determined to be a P-frame and the random access point is not set as the data transmission starting point (but the closest I frame is set as the data transmission starting point; configuring the media data sample having the

(closest) I frame as the data transmission starting point; configuring a new data stream using the media data sample and continuous media data samples” of Agarwal, Lin, and Wee with the method of “changing header information of a first media data sample segment” of Aksu because the fragmentation of a movie file shortens the length of time that a user has to wait before starting to view the streamed media as opposed to a non fragmented MP4 file (see Aksu p.3 ll.11-22 and p.4 ll.18-34).

10. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Wee in further view of Aksu.

Claim 33:

Lin discloses if a random access point selected by the user is an I frame, the starting point of the stream is that I frame (see col. 2 ll. 19-22), however, if the random access point selected is a P-frame, the system must adjust the starting point of the stream to the most recent I frame and transmit the most recent I frame with all the p frames leading to the requested random access p frame (see col. 4 ll. 24-32) (the act of finding the most recent I frame inherently means that a search was performed) which reads on “searching an I- frame closest to a P-frame random access point requested by a user” and configuring a media data sample by setting an I-frame as a data transmission starting point.

Lin doesn't disclose "converting a next P-frame that is adjacent to the I-frame into a new I-frame by calculating using the next P-frame and the I-frame; and changing header information of the media data sample"

Wee, an inventor from the same or a similar field, discloses converting a P-frame (P-frame P7, see col. 11 ll. 43-54) into a new I-frame (I-frame "I7") by calculating (transcoding) values of the existing I-frame (I-frame "I1") and a next P-frame (P-frame "P4"), repeatedly performing the converting ("is performed in as many nested loops as necessary") until the next P-frame (P-frame "P7") is the random access point to convert the P-frame random access point into a final new I-frame (I-frame "I7") (see Wee col. 11 ll. 35-54), which reads on "converting a next P-frame that is adjacent to the I-frame into a new I-frame by calculating using the next P-frame and the I-frame".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of searching an I-frame closest to a P-frame random access point requested by a user; and configuring a media data sample by setting an I-frame as a data transmission starting point of Lin with the method of "converting a next P-frame that is adjacent to the I-frame into a new I-frame by calculating using the next P-frame and the I-frame" of Wee for the benefit of gaining access to individual frames in fast-forward, rewind, editing, or splicing operations, thereby enhancing the viewers experience.

Neither Lin nor wee disclose "changing header information of the media data sample".

Aksu, an inventor from the same or a similar field, discloses MP4 file fragmentation in Fig. 5a where a File-level meta-data description part which appears at the beginning of streaming files as a header section must be received before any video is played back (see p. 5 ll. 8-11 and p 5 ll. 36-p. 6 ll.1). In random access play this file must be received in the header of the new data stream before any playback can begin. Therefore, the header information of the media data sample must be changed for proper playback.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of "searching an I- frame closest to a P-frame random access point requested by a user; converting a next P-frame that is adjacent to the I-frame into a new I-frame by calculating using the next P-frame and the I-frame; configuring a media data sample by setting the new I-frame as a data transmission starting point after converting the P-frame random access point into the new I-frame" of Lin and Wee with the method of "changing header information of the media data sample" of Aksu because the fragmentation of a movie file shortens the length of time that a user has to wait before starting to view the streamed media as opposed to a non fragmented MP4 file (see Aksu p.3 ll.11-22 and p.4 ll.18-34).

Claim 34:

Aksu, an inventor from the same or a similar field, discloses MP4 file fragmentation in Fig. 5a where a File-level meta-data description part which appears at the beginning of streaming files as a header section must be received before any video is played back (see p. 5 ll. 8-11 and p 5 ll. 36-p. 6 ll.1). In random access play this file must be received (transmitted to a user from a server) in the header of the new data stream before any playback can begin. Therefore, the header information of the media data sample must be changed for proper playback.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARI SAWAGED whose telephone number is (571)270-5085. The examiner can normally be reached on Mon-Thurs, 9:00AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANDREW KOENIG can be reached on (571) 272-7296. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sari Sawaged/
Examiner, Art Unit 2423

/Andrew Y Koenig/
Supervisory Patent Examiner, Art Unit 2423